

CLAIMS

What is claimed:

1. A bulk food product slicing machine comprising:
 - a rotatable blade (800) for slicing a bulk food product;
 - 5 a motor (1400) operably connected to said rotatable blade for rotating said blade against a bulk food product to slice the bulk food product into a sliced bulk food product output; and
 - 10 a base (100) located below said rotatable blade defining a portion of a periphery of a food slice receiving area for accepting the sliced bulk food product output that falls from said blade after slicing, said food slice receiving area being substantially open below such blade with no portion of the base extending into said food slice receiving area so that said bulk sliced food product output can form a stack of substantial height on said food slice receiving area.
- 15 2. A slice machine in accordance with Claim 1 wherein said food slice receiving area is provided with a sliced food receptacle that is operable connected to a scale (3900).
- 20 3. A slice thickness indicia (3500) for providing indicia of a food product slice thickness output by a food slicing machine which is visible to the operator during slicing, the food slicing machine having a rotatable blade (2800), a gauge plate (2500) adjustable relative to the blade, and a gauge plate adjustment (2700) for adjusting the distance between the gauge plate and rotatable blade, the slice thickness indicia comprising:
 - 25 a support (3501) having a surface adapted to connect to a portion of the slicing machine adjacent to the rotatable blade (2800) and adjustable gauge plate (2500); and
 - 30 visible indicia (3502) located on said support correlating to the distance between the gauge plate (2500) and rotatable blade (2800) such that the operator may view the visible indicia (3502) simultaneously with viewing the blade (2800) during food product slicing.

32-

4. A bulk food product slicing machine having a slice thickness indicia (3500) for providing indicia of a food product slice thickness output by a food slicing machine which is visible to the operator during slicing, comprising:

- 5 a rotatable blade (2800) for slicing a bulk food product;
- 10 a motor (3400) operably connected to said rotatable blade (2800) for rotating said blade against a bulk food product to slice the bulk food product into a sliced bulk food product output;
- 15 a gauge plate adjustment (2700) for adjusting the distance between the gauge plate (2500) and rotatable blade (2800);
 - 10 a support (3501) having a surface adapted to connect to a portion of the slicing machine adjacent to the rotatable blade (2800) and adjustable gauge plate (2500); and
 - 15 visible indicia (3502) located on said support correlating to the distance between the gauge plate (2500) and rotatable blade (2800) such that the operator may view the visible indicia (3502) simultaneously with viewing the blade (2800) during food product slicing.

5. A bulk food product slicing machine comprising:

- 20 a rotatable blade (800, 2800) having a sharp edge for slicing a bulk food product;
- 25 a motor (1400, 3400) operably connected to said rotatable blade (800, 2800) for rotating said blade against a bulk food product to slice the bulk food product into slices; and
 - 20 a blade sharpening assembly (900, 2900) moveably mounted adjacent to said rotatable blade (800, 2800) and having at least one sharpening stone for sharpening said rotatable blade (800, 2800) when moved into blade sharpening position with said sharpening stone (912, 2908) engaging the edge of said blade; said sharpening stone (912, 2908) being substantially shielded from slicing debris during operation of the food product slicing machine by a retractable shield (910, 2917) mounted adjacent to said sharpening stone (912, 2908); said retractable shield (910, 2917) being retracted from said sharpening stone (912, 2908) as said sharpening stone (912, 2908) is moved into blade sharpening position.

6. A bulk food product slicing machine comprising:
a rotatable blade (2800) having blade edge for slicing a bulk food product;
a motor (3400) operably connected to said rotatable blade (2800) for rotating
said blade against a bulk food product to slice the bulk food product into slices; and
5 a blade sharpening assembly (2900) having a sharpening stone (2908) adapted
to engage said blade edge for sharpening, a spring for biasing (2907) the sharpening
stone (2908) away from said blade edge, a guide (2904) for directing the movement of
said sharpening stone (2908) along a linear path toward the blade edge for sharpening
and away from the blade after sharpening, and an actuator (2903) for causing said
10 sharpening stone (2908) to move linearly downwardly along said guide (2904) until
said sharpening stone (2908) engages said blade edge for sharpening said blade
wherein said blade sharpening assembly (2900) is self adjusting to difference in blade
diameter.

15 7. The bulk food product slicing machine of Claim 6 wherein said blade
sharpening assembly (2900) includes a position sensor (2926) for detecting the
presence of the blade sharpening assembly (2900) on the slicing machine, said
position sensor (2926) being electrically connected to said motor (3400) such that said
motor (3400) cannot rotate said blade (2800) in the absence of said blade sharpener
20 assembly (2900).

8. The bulk food slicing machine of Claim 6 wherein said blade sharpening
assembly (2900) also includes a retractable shield (2917) for covering said sharpening
stone (2908) when said retractable shield (2917) is biased away from said blade
25 (2800) after sharpening.

9. A slicing machine for slicing a bulk food product, the food product having a
front end from which slices are generated and a back end remote from the front end,
an underside supported by the slicing machine, and a first side and a second side
30 transverse to the front and back end, the distance between the first and second side
defining the width of the product, the slicing machine comprising:
a rotatable blade (800, 2800) for slicing a bulk food product;

a motor (1400, 3400) operably connected to said rotatable blade (800, 2800) for rotating said blade against the front end of a bulk food product to slice the bulk food product into slices;

5 a slidably mounted table (300, for supporting the bulk food product as it is moved in a table movement direction toward said rotatable blade (800, 2800) and away from said rotatable blade (800, 2800) to slice the bulk food product; and

a sled (200) mounted to said table for securing the food product during slicing, said sled having a base portion (204) for supporting the underside of the food product during slicing, and a securing surface (212a) extending from said base portion (204)

10 for engaging at least one of said first side and second side of said food product, said securing surface (212a) being slidably mounted to said base portion of said sled (200) for sliding movement of said sled (200) in the table movement direction to adjust to the width of said food product.

15 10. The slicing machine of claim 9 wherein said sled includes a second securing surface (213) for engaging at least one of said first and second side of said food product opposite said securing surface, said second securing surface opposing said securing surface (212a) and being fixedly connected to said support surface (204) of said sled (200).

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11. A slicing machine for slicing a bulk food product, the food product having a front end from which slices are generated and a back end remote from the front end, an underside supported by the slicing machine, and a first side and a second side transverse to the front and back end, the distance between the first and second side defining the width of the product, the slicing machine comprising:

a rotatable blade (800) for slicing a bulk food product;

a motor (1400) operably connected to said rotatable blade (800) for rotating said blade against the front end of a bulk food product to slice the bulk food product into slices;

30 a slidably mounted table (300) for supporting the bulk food product as it is moved in a table movement direction toward said blade (800) and away from said blade (800) to slice the bulk food product; and

a sled (200) for securing the food product during slicing, said sled (200) being slidable mounted to said table (300) for movement transverse to the table movement direction along the length of said table (300), said sled (200) including:

5 a base portion (204) for supporting the underside of the food product during slicing;

a securing surface (212a) extending from said base portion (204) for engaging at least one of the first side and the second side of the food product, said securing surface (212a) being slidable mounted to said base portion (204) for movement of the securing surface (212a) in the table movement direction 10 to adjust to the width of said food product; and

at least one lock (217) for securing said sled (200) into a stationary position in at least one of the table movement directions and transversely to said table movement direction.

15 12. The slicing machine of Claim 11 wherein the sled has a second securing surface (2913) extending from said base portion (2904) for engaging the back end of the food product for securing the food product during slicing.

13. A bulk food product slicing machine comprising:

20 a base (100, 2100) for supporting said slicing machine;

a rotatable blade (800, 2800) for slicing a bulk food product;

a motor (1400, 3400) operably connected to said rotatable blade (800, 2800) for rotating said blade against a bulk food product to slice the bulk food product into slices;

25 a carriage (1000, 3000) slidable mounted to said base (100, 2100) for providing movement in a table movement direction toward said rotatable blade (800, 2800) and away from said rotatable blade (800, 2800);

a support arm (400, 2400) being pivotally mounted to said carriage (100, 2100); said support arm (400, 2400) including a pivot actuator (404, 2404) for 30 selectively pivoting the support arm (400, 2400) away from the body of the slicing machine to ease access for cleaning; and

36-

a table (300, 2300) releasably mounted to said support arm (400, 2400) and having a top surface supporting the bulk food product during slicing, said table (300, 2300) having a release (417, 2417) for disengaging said table (300, 23000) from said support arm (400, 2400) to allow separation of said table (300, 2300) from said support arm (400, 2400) to ease cleaning of said table (300, 2300) and said support arm (400, 2400).

14. A bulk food product slicing machine comprising:

a rotatable blade (800) for slicing a bulk food product;

10 a motor (1400) operably connected to said rotatable blade (800) for rotating said blade (800) against a bulk food product to slice the bulk food product into a sliced bulk food product output;

15 a slidably mounted table (300) for supporting the bulk food product as it is moved in a table movement direction toward said blade (800) and away from said blade (800) to slice the bulk food product said table (300) having a top surface and bottom surface; and

20 a handle (600) mounted to said table (300) for grasping by an operator to push said table (300) in the table movement direction toward the blade (800) and pull away from the blade (800) to slice the bulk food product, said handle (600) having a first grasping portion (605) extending substantially perpendicularly to the bottom surface of said table (300), a second grasping portion (604) adjacent to said first grasping portion (605) extending substantially horizontally, and a third grasping portion (603) adjacent to said second grasping portion (604) extending substantially parallel to the top surface of said table (300).

25 15. A bulk food product slicing machine comprising:

a rotatable blade (800) for slicing a bulk food product;

30 a motor (1400) operably connected to said rotatable blade (800) for rotating said blade (800) against a bulk food product to slice the bulk food product into a sliced bulk food product output;

a slidably mounted table (300) for supporting the bulk food product as it is moved in a table movement direction toward the blade and away from the blade (800) to slice the bulk food product said table having a top surface and bottom surface; and

5 a handle (600) mounted to said table for grasping by an operator to push the table in the table movement direction toward the blade and away from the blade to slice the bulk food product, said handle having at least one bend separating a first (603) and second (607) length, said first length (603) being mounted to said table and said second length (607) being mounted to said table.

10 16. An operator adjusted optimum stroke setting system for automatic operation of a bulk food slicing machine, said slicing machine having a rotatable blade for slicing a bulk food product, a motor operably connected to said rotatable blade for rotating said blade against a bulk food product to slice the bulk food product into slices, a slidably mounted table having a top surface supporting the bulk food product during slicing, and a drive motor for automatically driving the table toward the blade and away from the blade for automatically slicing the bulk food product, the system comprising:

15 a selector for activating an automatic slicing operation mode for the bulk food processing machine;

20 a zero position switch (3807) for detecting a table home position during automatic slicing of the food product, said zero position switch (3807) generating a home position signal;

25 a encoder (3801) for detecting the table position said encoder (3801) generating an end position signal when the table reaches an end position; and

30 a microprocessor (3802) electrically connected to said selector, encoder, and zero position switch, said processor (3802) having memory (3802a, 3802b) for recording said table start position signal, said processor (3802) being electrically connected to the drive motor (3800) and causing the drive motor (3800) to drive said table (300) to said table start position stored in memory (3802a, 3802b), said processor (3802) generating a table movement signal for causing the motor to drive said table (300) from said table start position toward the blade (800) to said table end position for slicing the food product, said processor (3802) generating a return signal

for causing the motor to drive the table away from the blade to said table start position in response to said end position signal.

17. A method of automatic operation of a bulk food product slicing machine, said
5 slicing machine having a rotatable blade for slicing a bulk food product, a motor
operably connected to said rotatable blade for rotating said blade against a bulk food
product to slice the bulk food product into slices, a slidably mounted table having a
top surface supporting the bulk food product during slicing, a memory device for
storing a table start position and a drive motor for automatically driving the table
10 toward the blade and away from the blade for automatically slicing the bulk food
product, said method comprising:

securing a food product to the table (300);
manually selecting automatic operation mode of said bulk food processing
machine;

15 manually driving the table (300) toward the slicing blade to a table start
position in which the bulk food product is placed adjacent to the blade;
generating a table start position signal indicating the location of the table start
position;

recording the table start position in the memory device (3802a, 3802b);
20 automatically driving the table (300) from the table start position toward the
blade to a table end position wherein the blade slices through the bulk food product;
and

automatically driving the table (300) from the table end position back to the
table start position recorded in the memory device (3802a, 3802b).

25 18. A bulk food product slicing machine comprising:
a base (100, 2100) for supporting said slicing machine;
a rotatable blade (800, 2800) for slicing a bulk food product;
a motor (1400, 3400) operably connected to said rotatable blade (800, 2800)
for rotating said blade against a bulk food product to slice the bulk food product into
30 slices;

a carriage (1000, 3000) slidably mounted to said base (100, 2100) for providing movement in a table movement direction toward said rotatable blade (800, 2800) and away from said rotatable blade (800, 2800);

5 a support arm (400, 2400) mounted to said carriage (100, 2100); said support arm (400, 2400) including a pivot actuator (404, 2404) for selectively pivoting the support arm (400, 2400) away from the body of the slicing machine to ease access for cleaning;

an adjustable gauge plate for varying the thickness of the slices;

10 a table (300, 2300) releasably mounted to said support arm (400, 2400) and having a top surface supporting the bulk food product during slicing, said table (300, 2300) having a release (417, 2417) for disengaging said table (300, 2300) from said support arm (400, 2400) to allow separation of said table (300, 2300) from said support arm (400, 2400) to ease cleaning of said table (300, 2300) and said support arm (400, 2400); and

15 an interlock system operably connecting said gauge plate and said table release such that said gauge plate must remain fully closed against said rotatable blade (800, 2800) while said table (300, 2300) is disengaged from said support arm (400, 2400), said interlock system including a slidable plate (2413) and a hinged flapper stop (2422) which prevents operator override of said interlock system.